

Ji Hyeon Jeong – Mayoral Political Ideology and Affordable Housing

Mayoral Political Ideology and Affordable Housing: A Comparative Analysis of the Koch and Bloomberg Administrations in the City of New York

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Abstract

This paper examines the relationship between mayoral political ideology and siting decisions for affordable housing during two different periods in New York City. On the overarching goal of housing programs—the supply of housing affordable to low-income families and thus sustainable development—the United States government had endeavored to meet two trends: (1) the geographical and social integration of communities composed of households of varying incomes and other socio-economic traits, and (2) the encouragement of private investment, with the aim of reducing reliance on public subsidies. From the political-economic standpoint of urban theory, “distributive justice” maintains an emphasis on the development of affordable housing without residential segregation, whereas the concept of “economic efficiency” refers to promoting the economic development of a community in order to attract private investment.

This conflict between distinct purposes of housing developments has been apparent in New York City. Given such conditions, two different mayors in office at two different times, Edward I. Koch and Michael R. Bloomberg, both confronted housing crises and presented large plans for addressing them. Koch, who was mayor during the 1980s, as a Democrat was concerned with distributive justice, whereas Bloomberg was a Republican whose political ideology was oriented towards economic efficiency.

In this paper, I test whether the political ideology of the two mayors had an impact on placements in affordable housing, and the extent to which the housing developments that were built were oriented towards social integration or encouragement for private investment. Using regression analysis, I compare the characteristics of neighborhoods where the two administrations developed affordable housing units, focusing on racial composition, socio-economic factors, and property attributes.

Keywords: Affordable Housing, Mayoral Political Ideology, Distributive Justice, Economic Efficiency, Residential Segregation, Private Investment, Koch, Bloomberg, New York City, Ordinary Least Squares (OLS), Geographically Weighted Regression (GWR)

List of Acronyms

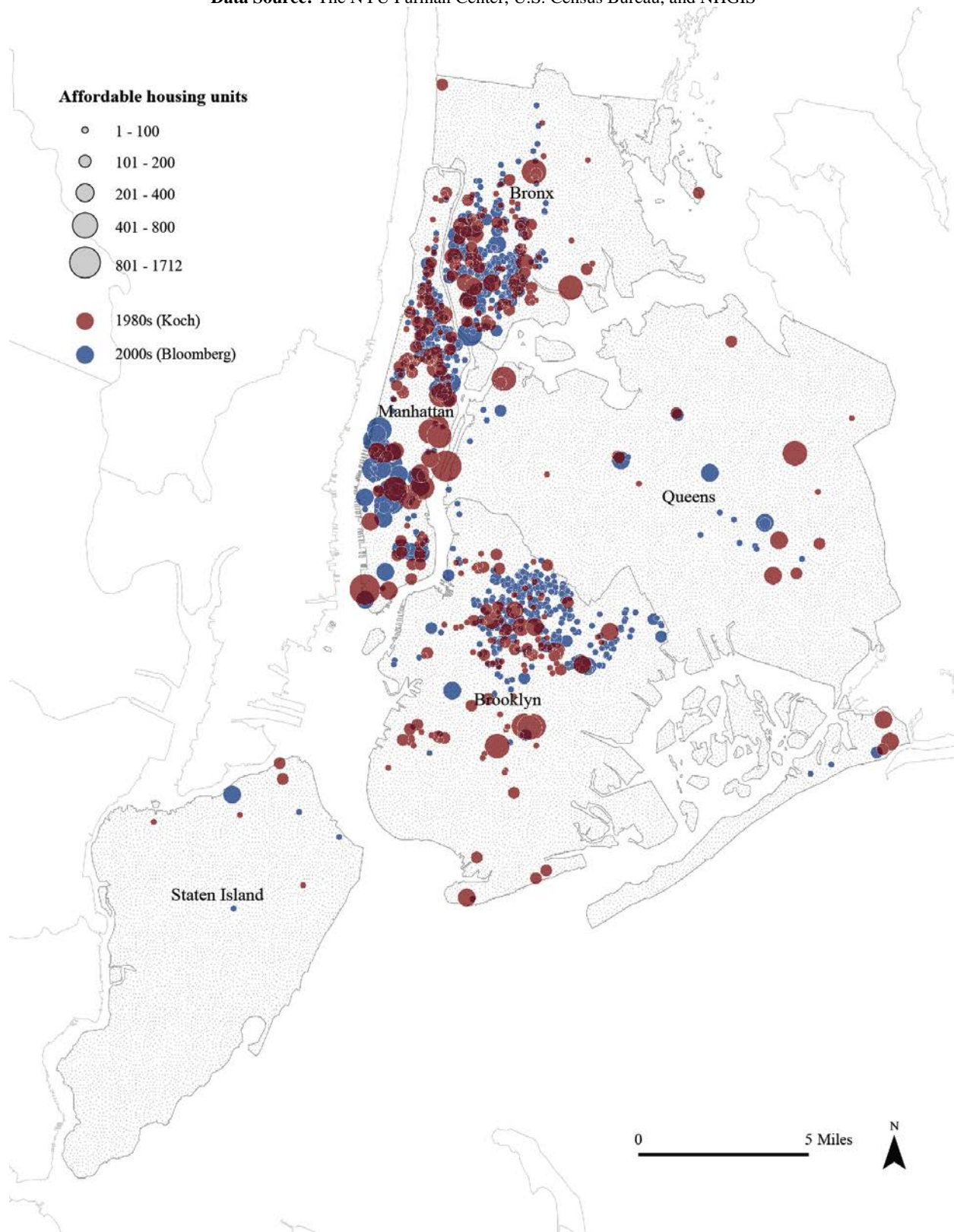
AHC	New York State Affordable Housing Corporation
AICs	Akaike Information Criterion
AR	Affordability Restrictions
CBD	Central Business District
DHCR	Division of Housing and Community Renewal
EDC	New York City Community Revitalization Corporation
FHA	Federal Housing Administration
GIS	Geographic Information System
GWR	Geographically Weighted Regression
HCR	New York State Homes and Community Renewal
HDC	New York City Housing Development Corporation
HFA	New York State Housing Finance Agency
HPD	New York City Department of Housing Preservation and Development
HUD	United States Department of Housing and Urban Development
IRS	Internal Revenue Service
LIHTC	Low Income Housing Tax Credits
NIMBY	Not in My Backyard
NHGIS	National Historical Geographic Information System
NHMP	New Housing Marketplace Plan
NYCHA	New York City Housing Authority
OLS	Ordinary Least Squares Regression
PRAC	Project Rental Assistance Contract
UDC	New York State Urban Development Corporation
VIF	Variance Inflation Factor

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FIGURE 1. Distribution of affordable housing in 1980s and 2000s, New York City

Data Source: The NYU Furman Center, U.S. Census Bureau, and NHGIS



1. Introduction

Historically, there have been two main trends in the United States regarding public housing and tenants and developers assistance through housing subsidies. From the beginning of public housing construction, tenancing practices were connected to segregated site selection. The Fair Housing Act of 1968 prohibited the differential treatment of dwellings on the basis of race and emphasized the pursuit of the geographical and social integration of neighborhoods. Meanwhile, with an apotheosis during the Reagan administration in the 1980s, government policies on public housing tended to encourage private investment, thereby lessening dependence on public capital. The conflict between these two trends reflects that in political-economic urban theory between the goals of “distributive justice” and “economic efficiency.” Social integration can be realized on the redistributive approach, while encouragement for private investment is more related to the efficiency approach. These two conflicting approaches were apparent at play in New York City with regard to housing developments, as the city faced housing crises during the 1980s, and again in the 2000s. The mayors during those periods, Koch and Bloomberg, presented large-scale housing plans to deal with these crises, although these plans expressed different political ideologies and approaches. This paper compares their respective impacts on placements of tenants in affordable housing developments. The main factors used to measure the relationship between mayoral political ideology and siting decisions were racial composition, socio-economic factors, and property characteristics.

Although opportunities for economic growth were strong predictors of housing developments, the mayors’ respective political stands mattered. Both sought private investment for housing developments. While inviting private capital, Koch was more concerned than Bloomberg would be about social integration. However, Bloomberg showed a stronger tendency to use the private investment to promote community development. His initiatives in subsidized housing also brought about increased residential segregation.

This paper examines the extent to which their housing policies of the two mayors served for social integration versus encouragement for private investment, and then evaluates whether the development matched the political ideology of the two mayors by using regression models. The remainder of the paper is divided into five sections. The first presents historical and theoretical backgrounds regarding the linkages between of the two trends with political ideology. The second and third sections describe the research design and data collection. This research mainly uses two types of regression model for quantitative analysis. Lastly, the fourth and the fifth sections draw conclusions based on findings from the analysis.

2. Background

2.1 Two trends: Social integration vs. private investment

Public, affordable, and subsidized housing programs¹ arose out of political, economic, and social conditions that changed over time in the United States. Finding remedies for the housing shortage and promoting the sustainable growth of communities have been primary goals of housing policy in the U.S. for some time (Whitehead, 1991). As part of the New Deal, the first public housing program was instituted by the Housing Act of 1937. It focused on the creation of employment opportunities and the elimination of blighted urban and rural areas, rather than being intended as a low-income housing program per se (Galster et al., 1997). After World War II, demand for housing exploded, and the U.S. Congress emphasized the importance of housing production as well as community development in the Housing Act of 1949. The Congress declared as follows (42 U.S. Code § 1441):

“...the general welfare and security of the Nation and the health and living standards of its people require housing production and related community development sufficient to remedy the serious housing shortage, the elimination of substandard and other inadequate housing...”

With the implementation of housing developments as principal goal, two critical trends have appeared historically: (1) the geographical and social integration of neighborhoods, and (2) encouragement of private investments, thereby reducing reliance on public subsidies. The integration means that low-income and relatively affluent families are fairly evenly distributed in housing developments. This also implies the equally distributed siting, with little residential segregation, of new subsidized housing for poor and minority populations. Meanwhile, the encouragement of private investment implies that subsidized housing programs need to provide the highest possible rates of risk-adjusted and short-term return to real estate developers in order to decrease dependence on public subsidies.

First, from the earliest days of public housing construction, residential segregation has been a central issue in the U.S. Tenanting practices were linked with segregated site selection, in which housing developments planned for African-Americans were built near traditional minority neighborhoods (Hirsch, 1983; Bauman, 1987). Beginning in the late 1960s and intensifying during the 1970s, a series of lawsuits was filed by minority public and subsidized housing tenants, alleging discriminatory actions by the U.S.

¹ Subsidized housing is not the same as affordable housing. Almost all affordable housing is subsidized, but not all subsidized housing is affordable. This article focuses on affordable housing.

Department of Housing and Urban Development (HUD) and the local housing authorities (Galster et al., 1999).

Accordingly, Title 8 of the Civil Rights Act of 1968, also known as the Fair Housing Act, prohibits discrimination in the sale, rental or financing of dwellings—on the grounds of distributive justice. Specifically, the act emphasized the elimination of differential treatment, which discriminates on the basis of race; the creation of stable, racially diverse neighborhoods; and the reduction of the number of poor minority households living in ghettos (Public Law 90–284, 82 Stat. 73). Hartnett (1993) argues that the act established objectives for subsidized housing programs in order to replace racial segregation with “truly integrated, racially balanced housing patterns” and “foster racially and economically integrated communities.”

Secondly, as the federal government’s retreat reached an apotheosis during the Reagan administration in the 1980s, the primary focus was placed on efforts to encourage property-led development by private developers (Wolf-Power, 2005). Most U.S. government officials and urban planners have taken a dim view of the government’s direct interventions in housing construction (Olsen, 2002). Consequently, urban policies have become increasingly neo-liberalized. The major changes were their management practices, the kinds of developments, and action more resembling entrepreneurial market participants (Galster et al., 1999). Local housing authorities were forced to attract private capital for the development and operation of housing ventures. In many cases, up to now, housing subsidies have been designed mainly to encourage private investment.

Housing programs have further distanced themselves from areas of the city where the probability of private investment and value extraction is slight. They have become more connected to global financial markets seeking short-term returns from property investments. This efficiency approach sought an increase in rents and property values and thus spatialized capital accumulation in large cities (Weber, 2002). In the latter half of the twentieth century, many housing programs were in fact designed to rebuild and repopulate neighborhoods affected by disinvestment (Wilson, 1993).

2.2 Inter-goal conflicts and political stands

There is a barrier inhibiting the realization of the above two goals simultaneously, and it is that they are potentially in conflict. The goal of tenants’ integration functions as a disincentive to private investors. As a general rule, low-income families are considered riskier tenants. They are thought to engage in undesirable social behaviors, including criminal activity and vandalism. These perceptions often lead to

protracted delays because residents oppose a proposal for housing developments that would be close to them. While they do understand the need for housing developments, they want the developments should be further away.² As a result, investors tend to require an unusually high rate of return for their participation in new housing ventures, and to easily give up their investments otherwise (Galster et al., 1999).

The conflict between goals can be explained more fundamentally by the political-economic concepts of distributive justice and economic efficiency (King, 2003).³ A government that stresses “distributive justice” in its political stands is expected to place a priority on geographical and social integration through subsidized housing programs. In this redistributive approach, provision of a decent home and suitable living environment for every family is considered paramount. On the other hand, a government that holds the center on “economic efficiency” is likely to encourage private investment to spur a community’s economy through subsidized housing programs. It aims to boost population and property values (and rents) for the city as a whole so as to increase the demand for businesses and local jobs, generate tax revenues, and create efficient use of existing public infrastructure. Such public investment may also ultimately attract the construction of private, unsubsidized housing developments nearby. In other words, this type of housing developments proceeds in a pursuit of economies of scale⁴ and agglomeration effects.⁵

2.3 Two different mayors in New York City

The conflicting national trends in housing development have been apparent in New York City. First, public and subsidized housing programs have contributed to racial and ethnic segregation and compounded the socio-economic inequalities among racial and ethnic groups in New York City (Halasz, 2011). Historically, most subsidized housing units were clustered and geographically separated from relatively affluent residential neighborhoods. In spite of increasing neighborhood diversity, the African-

² This phenomenon is called NIMBY, “Not in My Backyard.”

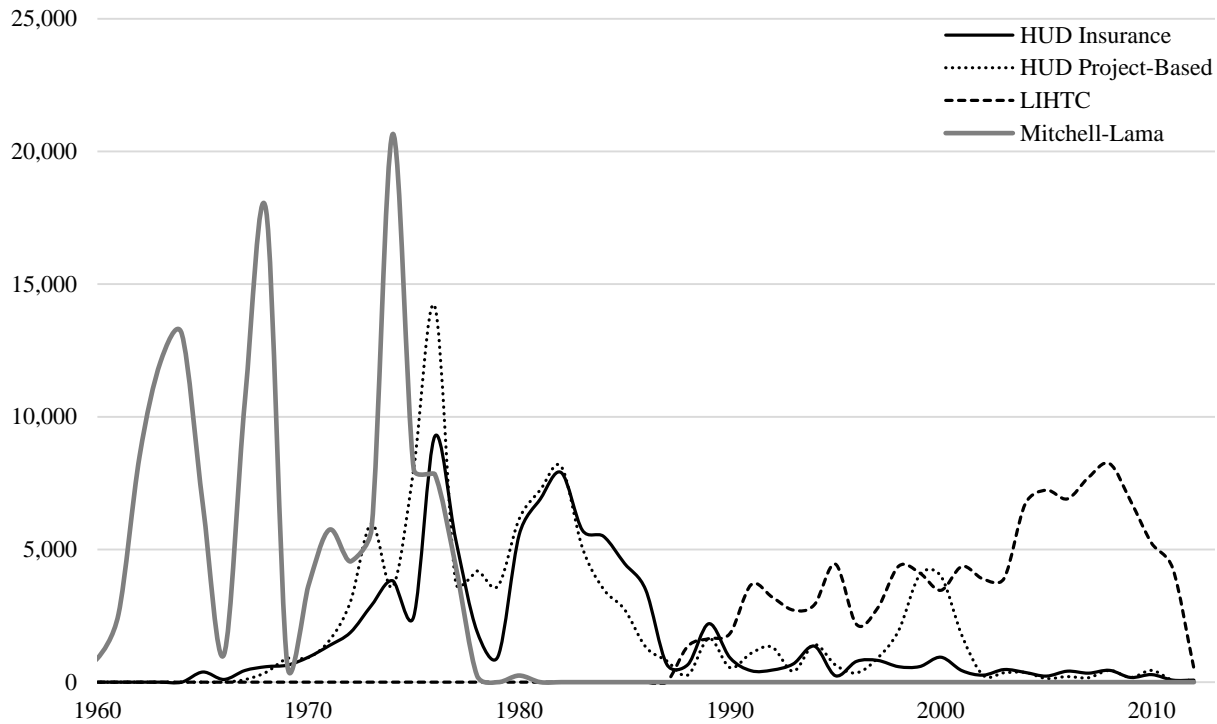
³ For a government, an effort to resolve its conflicts is not an ideal political strategy. A government in the hands of a particular political coalition prioritizes its key goals based on their seeming importance politically. The prioritization is driven by citizens’ preferences and budget limitations. Each citizen with his political ideology expects specific social services and votes in government elections accordingly (Carpini 1997). Also, limited budgets lead a government to focus on one of the two possible, conflicting goals.

⁴ When more units of a good or service can be produced on a larger scale, yet with (on average) lower input costs, economies of scale are said to be achieved. At the same time, this means that as a company grows and production units increase, it will have a better chance of lowering its costs. In theory, economic growth will be achieved when economies of scale are realized (Heakal, 2002).

⁵ The term “agglomeration” is used in urban economics to explain the benefits that retailers and other companies obtain by locating near each other. As more firms in related fields of business cluster together, their costs of production may decline significantly. Even when there are competing firms in the same sector cluster, advantages can be produced because the cluster attracts more suppliers and customers than a single firm would achieve alone (Oflaherty, 2009).

American and Hispanic populations were significantly segregated from Whites, Asians, and other racial and ethnic groups (Halasz, 2011).

FIGURE 2. Subsidized housing units in New York City under the Affordability Restrictions⁶



Data Source: The NYU Furman Center

Note: This figure excludes public housing built and operated by the New York City Housing Authority (NYHCA). Additionally, no public housing has been constructed in New York City since 1974. “HUD Insurance” refers to the existence of HUD Insurance and Financing portfolios, and “HUD Project-Based” HUD Project-based Rental Assistance portfolios. LIHTC refers to the Low Income Housing Tax Credits administered by the Internal Revenue Service (IRS). The HUD programs⁷ and LIHTC⁸ are dependent on private investment. On the other hand, the Mitchell-Lama program involved the direct provision of affordable rental and cooperative housing to households by the NYC Department of Housing Preservation and Development (HPD) and HUD rather than relying on the private sector.

⁶ In an affordable housing program, private developers maintain their property as affordable for a fixed period of time in exchange for a subsidy or public financing. The property is regarded during this period as being subject to the Affordability Restrictions (AR).

⁷ HUD guaranteed rents to private developers up to the published fair market rents for 20 to 40 years, providing an incentive for them to build affordable housing developments based on the financing of a predictable subsidized rental housing income stream. Specifically, in the HUD Financing and Insurance, the Federal Housing Administration (FHA) and HUD insured mortgage loans made by private banks or directly lent to private developers, in order to finance affordable. Housing portfolios of this kind take account of properties that receive mortgage insurance, or an interest reduction incentive.

⁸ The LIHTC is an indirect federal subsidy that uses the sale of tax credits to finance the development of affordable housing. Once awarded a LIHTC, the developer is able to sell tax credits to corporate investors to raise equity that is used for the construction of the project.

Moreover, the national trend of neo-liberalism that began under Ronald Reagan resulted in the city needing to invite private developers for housing provisions. Thus, since 1980, the city has engaged in the largest municipally-supported housing program in the history of the U.S, involving municipal support from private investment rather than provision of through direct government intervention (**FIGURE 2.**).

Under these conditions, two former mayors, Edward I. Koch (1978–1989) and Michael R. Bloomberg (2001–2012)⁹, well-known as holding opposite political ideologies, both made the efforts to resolve housing crises the city faced at the time. Koch was the kind of Democrat who generally seeks social justice and implements urban policies on the basis of a redistributive approach. Bloomberg was a Republican whose ideology is based on neo-liberalism, tending towards a *laissez-faire* or market-oriented economy (Brash, 2011; Arnold, 2012).¹⁰

Both mayors presented large housing plans. In these plans, Koch and Bloomberg created or preserved over 182,000 and 143,000¹¹ housing units, respectively (HPD, 1988 and 2003) in many of distressed areas that suffered from the deterioration of neighborhoods.

In the 1980s, financial difficulties resulted in a decline of inner-city neighborhoods that seemed to some to threaten their future. Deteriorating socio-economic conditions and expensive property values and rents for workers pushed businesses to relocate out of New York City, and the loss of tax revenues coincided with reductions in municipal services (The NYU Furman Center, 2015). In response to these challenges, Mayor Koch actively devoted himself to rebuilding the city’s housing stock based on his Ten-Year Housing Plan. In his original speech announcing the Plan, he described a “five-year program to build or rehabilitate around 100,000 housing units for middle-class, working poor and low-income families and individuals” (Koch, 1985). Later, Koch increased the number of subsidized units to 252,000. The key goal of the program was obviously to ameliorate the shortage of affordable housing in the city, and also to thereby contribute to economic redevelopment. A document produced by HPD on the Ten-Year Plan made the point explicitly: “We are creating more than just apartments—we are re-creating neighborhoods. We are revitalizing parts of the city that over the past two decades have been decimated by disinvestment, abandonment, and arson” (HPD, 1989).

⁹ In this article, the two 10-year periods, 1980 to 1989 and 2000 to 2009, are used to represent the Koch and Bloomberg administrations. Please refer to the Research Design section.

¹⁰ Although Koch frequently endorsed prominent Republican candidates after leaving office and Bloomberg switched his party registration in 2001 to run for mayor as a Republican, their policy implementations clearly represented ideological proclivities typical of their respective party affiliations (Brash, 2011; Arnold, 2012).

¹¹ The figures include public housing units provided by NYCHA. Koch and Bloomberg initially planned to assist with the construction or preservation of 252,000 and 165,000 housing units, but their respective achieved numbers were approximately 182,000 and 143,000.

In the decades since, the city's economy has boomed and the population continued to increase, leading to a revival of the housing market. But this development placed the city under a tremendous amount of pressure with regard to housing because the supply cannot keep up with demand. Population growth has amplified the upward pressure on property values and rents, forcing many working-class residents to seek housing in suburban New York counties, or in New Jersey or Pennsylvania. Indeed, the city needed a new plan that would build on Koch's achievements while addressing the fact that the booming real estate market of the late 1990s and early 2000s offered little incentive to build housing for low-income families (Terwilliger Center, 2012).

In 2003, at the end of the first year of his term, mayor Bloomberg announced the New Housing Marketplace Plan (NHMP), the city's most comprehensive housing program since the Koch administration. As in the 1980s, the plan focused on the primary goals of urban housing policy: expanding the supply of affordable, moderate- and low-income, and sustainable housing, and at the same time strengthening neighborhood economies (City of New York, 2003).

Although the two mayors both devoted substantial efforts to resolving the city's housing problems and generating many affordable housing units in the city, there is little reliable evidence, quantitative or testimonial, regarding how each administration dealt with the two conflicting national trends in the history of housing in the city: (1) the geographical and social integration of neighborhoods and (2) the encouragement of private investment. Thus, in my research, I examine the extent to which the housing developments by the two mayors promoted social integration or encouragement for private investment, and then evaluate whether the respective development matches the political ideology of the mayors. For this analysis, I identify and measure some of the characteristics of neighborhoods where the number of affordable housing units grew under both mayors, focusing on racial composition, socio-economic factors, and property characteristics.

3. Research Design

In determining whether a government leans toward neighborhood integration, private investments in community development through housing developments, or both, and in measuring the extent to which a mayoral administration is oriented to one side or the other, I set up these hypotheses:

- (a) Mayor Koch, a Democrat favoring redistributive approaches, contributed to the siting of affordable housing in order to promote the social integration of neighborhoods.*
- (b) Contrariwise, mayor Bloomberg, a Republican concerned about business development and government efficiency, focused on the placement of affordable housing with public incentives in order to encourage private investment.*

Next I address the following two major questions:

- (a) How can I measure the relationship between the siting of affordable housing and efforts aimed at promoting the social integration of neighborhoods?*
- (b) How can I measure the relationship between the location of the housing developments and encouragement to private investment?*

3.1 Variables

In response to these questions, this study looks at the factors that affect placements of subsidized housing, and also looks into what impacts the housing developments had on the surrounding neighborhoods once they were built. My predictors used to model the likelihood of a neighborhood receiving affordable housing was guided by the following three categories: racial and ethnic composition, socio-economic indices, and housing characteristics. Fifteen potentially relevant characteristics¹² of affordable housing placement were identified from literature reviews. They are presented with symbols for regression analysis in **TABLE 1**. The racial and ethnic composition encompasses percentages of African-Americans, Hispanics and Asians. The socio-economic indices include median family income, poverty rate, unemployment rate, rate of the elderly persons¹³, percentage of persons with less than a bachelor's degree, percentage of persons who live in group quarters, and population density. Lastly, the property

¹² They are independent variables on regression models.

¹³ I used the term “elderly” in this study to indicate those whose age is 60 or above, because the average retirement age in the U.S. in 2013 was 61. The relevant age is earlier for the previous times measured: 57 for 1990 and 59 for 2010 (NASI, 2015).

characteristics include median rent, rent changes over a decade, vacancy rate, property size, and percentage of owner-occupied units.

TABLE 1. Summary of variables

Variable	Unit	Explanation	Measured Ideology
Dependent variable			
Unit_{period}	each	# of affordable housing units under AR	Not applicable
Independent variable			
Σ Race			
Pct_{African}	%	Percentage of African-Americans	Distributive justice
Pct_{Hispanic}	%	Percentage of Hispanics	Distributive justice
Pct_{Asian}	%	Percentage of Asians	Distributive justice
Σ Socio			
Income	USD [10 ³]	Median family income	Both
Pct_{pov}	%	Poverty rate	Both
Pct_{Unemp}	%	Unemployment rate	Distributive justice
Pct_{Elder}	%	The elderly rate	Distributive justice
Pct_{Edu}	%	% of persons: less than a bachelor's degree	Distributive justice
Pct_{Quart}	%	% of persons: in-group quarters	Distributive justice
Pct_{Den}	%	Population density	Both
Σ Property			
Rent	USD [10 ³]	Median rent value	Economic efficiency
ΔRent	%	Change of rent value over a decade	Economic efficiency
Pct_{vacant}	%	Vacancy rate	Economic efficiency
Pct_{Size}	%	Property size: # of units / # of property	Economic efficiency
Pct_{Owner}	%	Percentage of owner-occupied	Both

Data Source: U.S. Census Bureau and NHGIS

Note: All variable types are continuous. The “#” indicates the total number. The “Both” in the Theory to measure column refers to distributive justice and economic efficiency. Values of each variable are provided per census tract, and “AR” indicates an affordability restriction. The number of affordable housing units under AR only includes that starting with AR during a period.

Racial composition

In political economy of race, politically powerless neighborhoods will be home to a disproportionate share of land uses that is considered undesirable by investors, such as public or affordable housing. In the U.S., politically powerless neighborhoods have typically also been those with predominantly poor and

minority communities (Freeman et al., 2001). I include in my model the proportion of a neighborhood population that is African-American, Hispanic, or Asian to see impacts of a neighborhood's racial composition on the chance of receiving housing assistance. I suspected that neighborhoods with a high concentration of African-Americans or Hispanics might be especially susceptible to unwanted land uses such as subsidized housing since they are usually thought of as the most disadvantaged groups in the U.S. (Freeman et al., 2001). I maintain that areas with minority groups may be politically dysfunctional, and this may hinder their ability to compete in the placement process. So, looking at racial composition may be useful in helping to measure a government's efforts towards neighborhood integration through housing developments.

Socio-economic indices

I also include measures of the neighborhood's seven socio-economic factors. It is common to think that a neighborhood's having a high concentration of minority groups indicates a lower income level, high poverty, and an unemployment rate, and vice versa. It is also important to control for the proportion in the neighborhood of elderly persons in order to examine which neighborhood is susceptible to receiving affordable housing, because housing programs are in part created for the elderly. Educational attainment is one of the main contributing factors to social segregation. In addition to these factors, I also control for whether the neighborhood has both a high proportion density and a high proportion of persons who live in group quarters. Inasmuch as those variables are core indicators used to identify a "distressed area" (Massey, 1990), investigating the conditions in a neighborhood relative to the siting of affordable housing can inform a government's tendency to neighborhood integration.

Property characteristics

Looking at rents and their changes over a decade helps to understand the government's orientation towards private investment through housing developments. Developers tend to be interested in where rents or property values are high, and they invest in areas where the values are expected to increase subsequently. In addition, a neighborhood's vacancy rate is a good indicator of the government's encouragement for private developers because a typical mode of urban redevelopment is the promotion and revitalization of a region with a high vacancy rate by inviting private capitals. Property size is included because the larger the scale of the projects is, the more benefits are created for developers. So housing created with private involvement tends to be larger. A neighborhood with a high concentration of owner-occupied units might be less likely to have the infrastructure or zoning that will allow the development of public or affordable housing due mainly to the NIMBY (Freeman et al., 2001).

3.2 Regression models

I use two types of regression model, Ordinary Least Squares (OLS) and Geographically Weighted Regression (GWR).¹⁴ In these models, the 15 characteristics from the three categories are independent variables, and the number of affordable housing units that started with an Affordability Restriction during a selected period serves as a dependent variable. The OLS provides a single regression equation to model the total number of affordable housing units in relationship to the independent variables at the city level. Values of each feature are provided per census tract. The number of observations is thus equal to the number of census tracts.¹⁵ The OLS is also used as a basis for spatial regression analysis of GWR.

Next, to assess detailed spatial impacts at the census tract level, which cannot be observed in the OLS model, I run the GWR model. The GWR constructs separate equations by incorporating the dependent and independent variables of features falling within the bandwidth of each target feature (ESRI GIS Center 2015). The GWR can draw coefficients for each census tract on the basis of the spatial regression technique. So the GWR presents a more local model of the variables to be understood by fitting a regression equation to every census tract in New York City.

3.3 Scope of research

To compare the siting decisions of housing developments relative to racial composition, socio-economic indices, and property characteristics under the two mayoral administrations, my regression models are run for *two* time periods individually: 1980–1989 and 2000–2009 (1980s and 2000s hereafter). These two 10-year periods largely represent the Koch and Bloomberg administrations, although each mayor governed the city for twelve years across the indicated time frames.¹⁶ The reason is that, in the case of data released before 2000, only decennial census datasets connected to the Geographic Information System (GIS) are accessible through the U.S. Census Bureau.¹⁷

¹⁴ A spatial statistics tool, ESRI ArcGIS, Version 10.2.2, is used to run both the OLS and GWR models.

¹⁵ The number of census tracts by each period is as follows: 2202 for the 1980s (Manhattan: 295, Bronx: 355, Brooklyn: 785, Queens: 670, and Staten Island: 97); 2216 for the 2000s (Manhattan: 296, Bronx: 355, Brooklyn: 783, Queens: 672, and Staten Island: 110).

¹⁶ Dates of mayoral administrations: Koch, 1978–1989; Dinkins, 1990–1993; Giuliani, 1994–2001; and Bloomberg, 2002–2013. The interim period 1990–1999, mostly under Dinkins and Giuliani, is not investigated. It may be dealt in another paper.

¹⁷ To run ArcGIS OLS and GWR models, each census tract in datasets is necessary to be connected to a unique GID ID number.

3.4 Ordinary Least Squares (OLS) at the city level

My OLS regression model for measuring the impact of 15 independent variables on affordable housing units provided can be expressed formally as follows:

$$\text{Unit}_{\text{period}} = \alpha + \beta \sum \text{Race} + \gamma \sum \text{Socio} + \delta \sum \text{Property} + \varepsilon \quad (1)$$

$$\beta \sum \text{Race} = \beta_1 \text{Pct}_{\text{African}} + \beta_2 \text{Pct}_{\text{Hispanic}} + \beta_3 \text{Pct}_{\text{Asian}} \quad (2)$$

$$\gamma \sum \text{Socio} = \gamma_1 \text{Income} + \gamma_2 \text{Pct}_{\text{pov}} + \gamma_3 \text{Pct}_{\text{Unemp}} + \gamma_4 \text{Pct}_{\text{Elder}} + \gamma_5 \text{Pct}_{\text{Edu}} + \gamma_6 \text{Pct}_{\text{Quart}} + \gamma_7 \text{Pct}_{\text{Den}} \quad (3)$$

$$\delta \sum \text{Property} = \delta_1 \text{Rent} + \delta_2 \Delta \text{Rent} + \delta_3 \text{Pct}_{\text{Vacant}} + \delta_4 \text{Pct}_{\text{Size}} + \delta_5 \text{Pct}_{\text{Owner}} \quad (4)$$

Where $\text{Unit}_{\text{period}}$ is the number of affordable housing units, $\beta \sum \text{Race}$, $\gamma \sum \text{Socio}$, and $\delta \sum \text{Property}$ are a vector of the three series of characteristics. The coefficients to be estimated are α , β , γ and δ , and ε is an error term. The coefficients β_1 to β_3 , γ_1 to γ_7 and δ_1 to δ_5 reveal the increase or decrease in affordable housing units per unit of each independent variable. $\text{Unit}_{\text{period}}$ is a numerical value without a unit. The units of median family income (**Income**) and median rent value (**Rent**) are both in U.S. dollars in the thousands. All the other variables are expressed as percentage. As discussed earlier, my model has a total of 15 independent variables and they are presented with symbols for regression analysis in **TABLE 1**.

Each coefficient of the independent effect on housing units may be biased if these relevant variables are left out, because of not controlling for enough information so as to ensure that the impact estimates do not suffer from omitted variable bias. Notice that values are provided by each period, and that β , γ and δ will vary across neighborhood and period. These thereby help to control for neighborhood conditions within the city and changing social and historical contexts during the Koch and Bloomberg administrations.

3.5 Geographically Weighted Regression (GWR) at the census tract level

The GWR model builds a local regression equation for each census tract so that it considers the detailed pattern of a correlation between affordable housing units and the factors of a neighborhood's racial composition, socio-economic indices, and property characteristics. The GWR models takes account of how spatially consistent (stationary) are the relationships between the dependent variable and each independent variable across the study area. It also takes into account urban ecology, i.e., distance from the CBD.¹⁸ When the values of the dependent variable cluster spatially, the GWR very likely has problems

¹⁸ The GWR model may detect the CBD census tracts through a combination of variables such as population, density, median income, rent price and distances among tracts.

with local multi-collinearity.¹⁹ I exclude a census tract if its condition number²⁰ is larger than 30.²¹ In addition, severe model design errors often reveal a problem of city level multi-collinearity in the GWR model. To avoid this problem, I examine the Variance Inflation Factor (VIF)²² value for each independent variable in the OLS model²³ and then exclude those with a VIF value above 7.5 because the larger VIF value prevents solving the GWR (ESRI GIS Center, 2015). Also, I do not include binary or dummy variables in my model, as these will create problems of census level multi-collinearity and are not needed with the GWR, which already accounts for spatial relations between tracts.²⁴ When run the GWR, I used the “Adaptive Kernel type²⁵” with an “Akaike Information Criterion (AICs) Bandwidth²⁶.” These methods were the appropriate ones in order to have the highest R-squared in securing the statistical significance of variables.

Lastly, I draw outcomes from the GWR model only for the specific coefficients of independent variables at 90 percent or above statistical significance, because the coefficient of a statistically insignificant variable has a high potential to have local multi-collinearity for some of the census tracts. Afterwards, I create GIS maps that show the distribution of all coefficient values for census tracts, which are generated by the GWR. This helps in forming a better understanding of census level variations when compared to the trends at the city level from the OLS.

4. Data Collection

I gathered my data mainly from three sources. First, through the New York University Furman Center for Real Estate and Urban Policy (The NYU Furman Center), a database of affordable housing programs within the five boroughs of New York City was obtained. The dataset contains information regarding the

¹⁹ Although I made adjustments to the series of variables, the local multi-collinearity can be observed in a census tract in the GWR model.

²⁰ The condition number is generated by ArcGIS, and it indicates the degree to which results are unstable due to local multi-collinearity. According to the ESRI GIS Center (2015), the results for features with a condition number large than 30 are inaccurate.

²¹ Few census tracts with a condition number larger than 30 were detected, because my GWR models dealt only with variables that specified statistically significant relationships at 90 percent or above.

²² The VIF measures the redundancy among independent variables.

²³ As mentioned earlier, the OLS is used as a basis for running the GWR model.

²⁴ The GWR automatically filters out binary characteristics (ESRI GIS Center, 2015).

²⁵ This Kernel type allows the spatial context (the Gaussian kernel) to be a function of a specified number of neighbors. Where the feature distribution is dense, the spatial context is smaller; where the feature distribution is sparse, the spatial context is larger.

²⁶ The extent of the kernel is determined using the Akaike Information Criterion (AIC), which is a measure of the relative quality of a statistical model for a given set of data. That is, given a collection of models for the data, the AIC estimates the quality of each model, relative to each of the others. Hence, the AIC provides a means for model selection. The bandwidth is decided as 500 neighbors closest to the targeted census tract.

number of affordable housing units, their locations, and starting point for affordability restrictions.²⁷ The dataset limited the entries to programs sponsored by the four relevant government housing agencies: the United States Department of Housing and Urban Development (HUD) at the federal level; the Division of Homes and Community Renewal at the state level; and the New York City Department of Housing Preservation and Development (HPD) and the Housing Development Corporation (HDC) at the city level.

In addition to affordable housing information, the data encompass housing programs through deductions, credits, and abatements that are funded by the Internal Revenue Service (IRS), which is the largest source of housing subsidies in New York City. It also includes affordable housing-related state and city tax relief programs administered by the New York City Department of Finance. Most of them are excluded because the study focuses on affordable housing. Although some other government agencies and private sector organizations sponsor affordable housing programs, such as the U.S. Veterans Administration, labor unions, and large private companies, information on those programs is not provided by the NYU Furman Center due to data unavailability. This paper accordingly excludes those programs as well.

Secondly, racial, socio-economic, and property information in census tracts was gathered from the U.S. Census Bureau and National Historical Geographic Information System (NHGIS). NHGIS offers summary tables with regard to the independent variables used: percentage of African Americans, Hispanics and Asians, median family income, poverty rate, unemployment rate, proportion of elderly persons, persons with less than a bachelor's degree, persons who live in group quarters, population density, median rent price, change of rent value over a decade, vacancy rate, and owner-occupied units. Basically, they are all from U.S. decennial censuses, the American Community Survey, and a selection of other U.S. surveys. Percentages and other variables not mentioned in this Data Collection section are calculated based on given data. Due to the GIS ID numbers, census tract datasets in 2000 or earlier come from NHGIS; the 2010 dataset is from the U.S. Census Bureau. The shifting boundary and number of census tracts from 1980 to 2009 is also taken into consideration.

The other statistics and figures shown in this article are all gathered from the official websites of housing-related public authorities, including the U.S. Department of Housing and Urban Development (HUD); the New York State Homes and Community Renewal (HCR), and formerly the Division of Housing and Community Renewal (DHCR); The New York City Housing Authority (NYCHA), and the New York City Department of Housing Preservation and Development (HPD).

²⁷ Although affordability restrictions involve a fixed contract period specifying both the starting and ending points in time, my research is centered on the starting date of the restrictions only.

5. Analysis

TABLE 2. Coefficients, probability, and diagnostics from OLS regression equations

Variable	Koch (1980s)		Bloomberg (2000s)	
	Coefficient	Probability	Coefficient	Probability
Racial composition				
African American, %	2.44	0.50	5.48	0.28
Hispanic, %	– 4.69	0.61	25.26	0.08 *
Asian, %	– 14.16	0.49	– 284.65	0.00 ***
Socio-economic Indices				
Median family income, \$	– 0.11	0.58	– 0.40	0.02 **
Poverty rate, %	2.38	0.45	38.14	0.00 ***
Unemployment rate, %	– 6.56	0.76	20.75	0.27
The elderly rate, %	– 12.84	0.29	17.81	0.32
Less than a bachelor %	7.52	0.26	– 5.09	0.52
In-group quarters, %	– 3.42	0.69	– 19.47	0.06 *
Population density, %	204.75	0.00 ***	– 51.94	0.47
Property characteristics				
Median rent value, \$	14.44	0.46	51.09	0.00 ***
Change of rent value, %	– 1.79	0.28	3.49	0.03 **
Vacancy rate, %	46.93	0.00 ***	62.66	0.00 ***
Property size, %	1.14	0.00 ***	1.42	0.00 ***
Owner-occupied, %	– 0.68	0.89	– 5.60	0.42
Diagnostics				
Number of observations	2202		2216	
Degrees of freedom	15		15	
R-squared	0.81		0.57	
Joint F Statistic	623.15	(> F) 0.00 ***	191.03	(> F) 0.00 ***
Joint Wald Statistic	920.71	(> Chi-squared) 0.00 ***	570.76	(> Chi-squared) 0.00 ***
Koenker (BP) Statistic	161.39	(> Chi-squared) 0.00 ***	85.68	(> Chi-squared) 0.00 ***

Data Source: ArcGIS’s OLS Regression, the NYU Furman Center, U.S. Census Bureau, and NHGIS

Note: Asterisks next to a number indicate a statistically significant p-value: *(p < 0.1), **(p < 0.05), ***(p < 0.01). ‘\$’ indicates one-thousand U.S. Dollar. ‘F’ indicates Joint F Statistic. The number of observations is that of census tracts in New York City as mentioned earlier.

The regression models for the two administrations are presented in **TABLE 2**. A central question in this study was whether racial composition, socio-economic factors, and property characteristics play a dominant role in determining where affordable housing was built during Koch and Bloomberg administrations.

5.1 Analysis of racial composition

From OLS models

One part of this study sought to assess the role of ethnicity in siting of affordable housing. The OLS model results suggest that once the effects of other variables are controlled, there were no relationships between the racial composition in census tracts and affordable housing developments during the 1980s, under Koch's administration. Likewise, the percentage of African-American residents was not a significant factor in explaining the siting of affordable housing during the 2000s, under Bloomberg's administration. However, the percentage of Hispanics in a census tract showed a statistically significant association with the siting of housing developments during this period. The regression coefficient was a relatively strong 25.26. The percentage of Asians in census tracts is negatively related to the probability of receiving assisted housing under the Bloomberg administration. The coefficient is -284.65.

These findings suggest that the African-American, Hispanic, and Asian ethnicities did not play a significant role in the siting of affordable housing in Koch's housing developments. But the variables representing the proportions of Hispanic and Asian households indicate that they had an impact under the Bloomberg administration. The direction of the impact for the percentage of Hispanics variable is positive for the placement of affordable housing developments, which would amplify the residential segregation of Hispanic minority communities. The direction of Asian households was negative, and the Asian population was relatively excluded geographically from the provision of affordable housing.

TABLE 3. The number of affordable housing units starting with the Affordability Restriction

Period	Affordable housing units					
	Manhattan	Bronx	Brooklyn	Queens	Staten Island	NYC
1980s (Koch)	19,170	12,884	13,625	3,631	476	49,786
2000s (Bloomberg)	21,039	16,238	8,816	2,082	487	48,662

Data Source: The NYC Furman Center

Note: As a reminder, the number of affordable housing units includes only those units that started with an Affordability Restriction within a given period. Public housing, preserving units beforehand, and tax incentive programs without an affordability restriction are excluded.

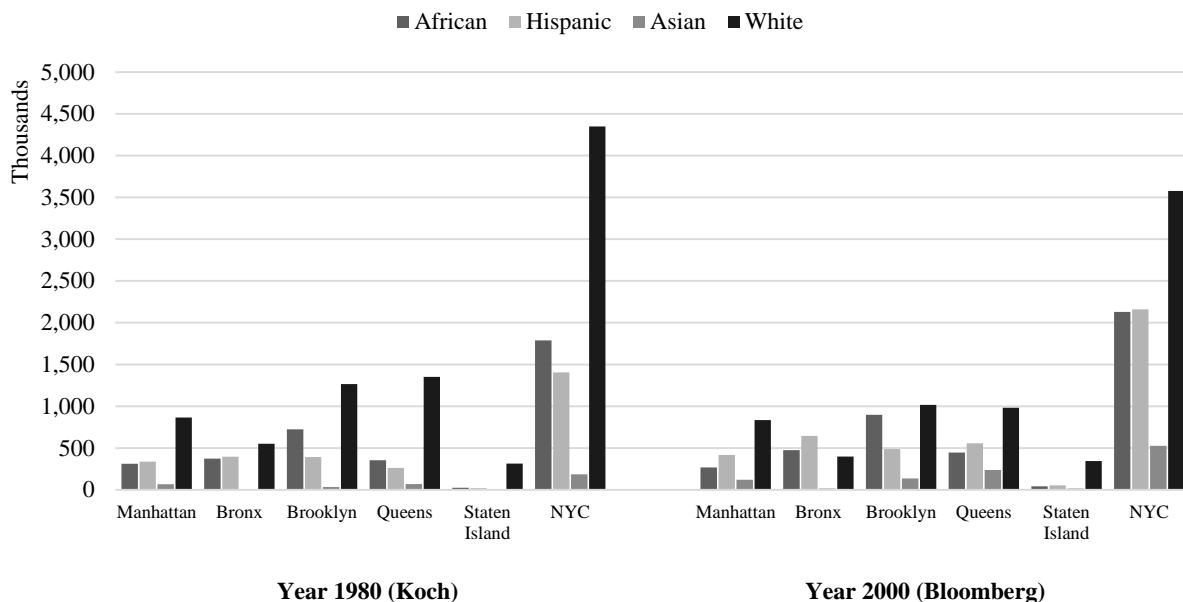
From GWR models

FIGURE 4. is the coefficient map of the percentage of Hispanics relative to affordable housing units at the census level during the 2000s. The highest positive values were observed in census tracts around the Hell’s Kitchen and Chelsea neighborhoods in Manhattan. Tracts in midtown and downtown Manhattan as well as the Bushwick, Bedford, Brownsville, and East New York neighborhoods in Brooklyn also indicated positive relationships. However, Harlem in Manhattan and South Bronx showed highly negative relationships. Although the Bronx had a high concentration of Hispanic residents overall (**FIGURE 3.**), affordable housing units were developed in neighborhoods with relatively less proportion of Hispanics.

In **FIGURE 5.**, which shows the distribution of the coefficients of the Asian proportion during the 2000s, I noticed tracts with extremely negative values in tracts all around the Bronx, where the number of Asian residents is very few (**FIGURE 3.**). The highest negative coefficient is -9,655. This might be the main reason why the coefficient in the OLS model is the negative value: -248.65. Although the wide distribution of dark red shows a positive relationship throughout New York City, the absolute value is relatively small (also note that the highest value is the positive 79, and that the zero point is located at the very bottom of the legend). This suggests that there is not a strong relationship between the number of Asian residents in a neighborhood and the location of affordable housing, except for midtown and downtown Manhattan where affordable housings were concentrated during the Bloomberg period. This is different from the results in the OLS.

FIGURE 3. Racial group population by borough in New York City

Data Source: U.S. Census Bureau and NHGIS



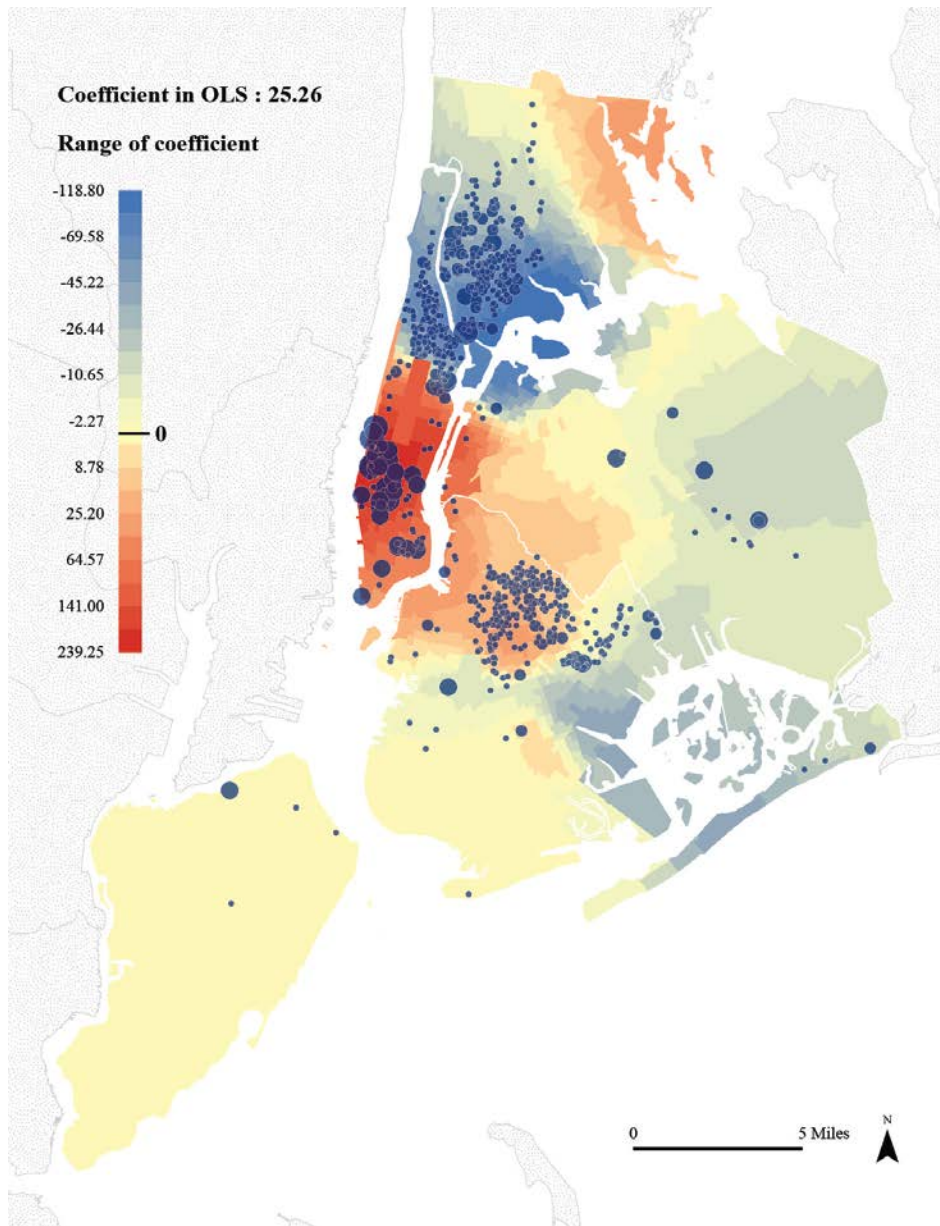


FIGURE 4. Distribution of coefficients—percentage of Hispanics, 2000s
Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

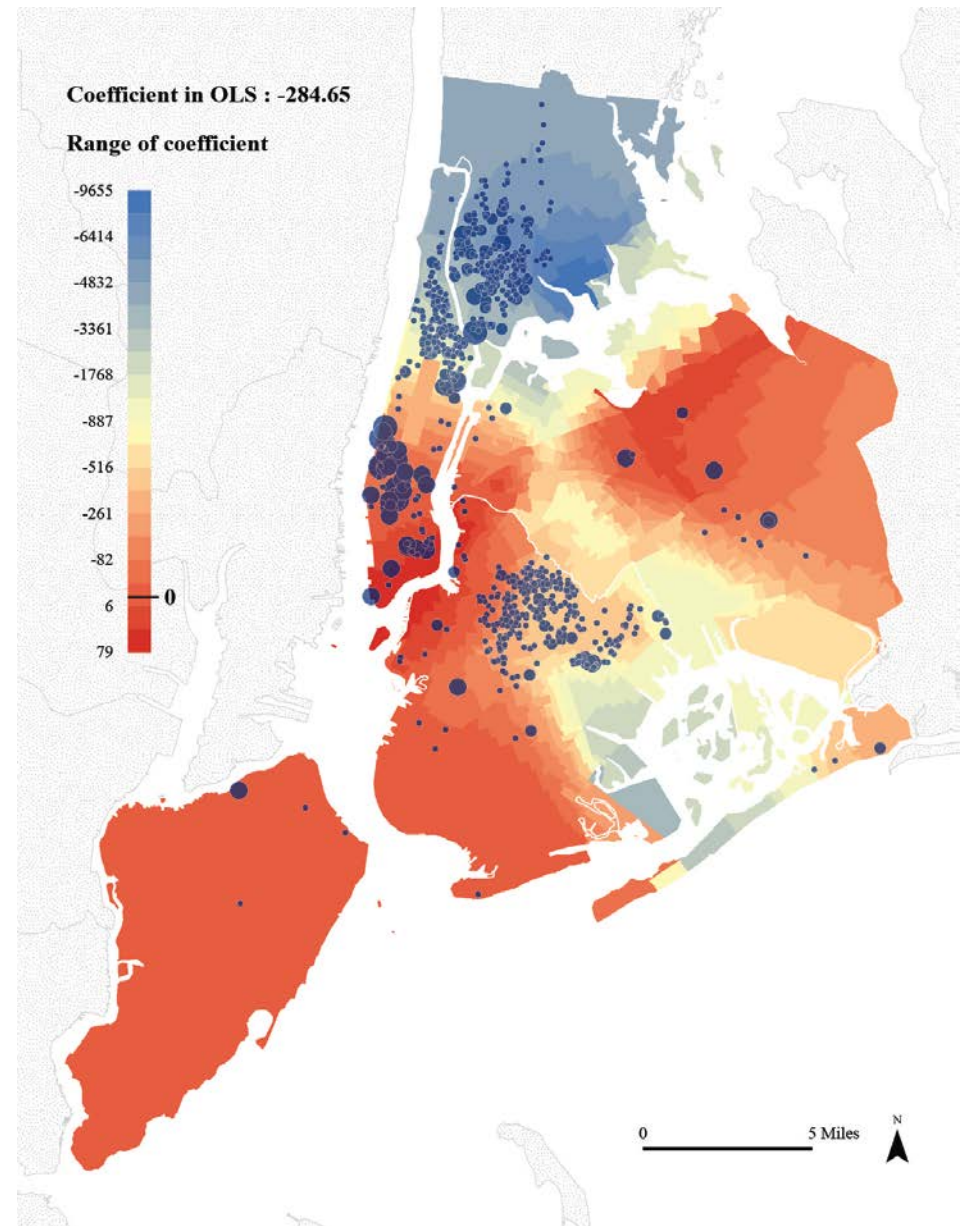


FIGURE 5. Distribution of coefficients—percentage of Asians, 2000s
Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

5.2 Analysis on socio-economic indices

From OLS Models

During the 1980s, no relationships were found between affordable housing and the following six socio-economic factors: median family income, poverty rate, unemployment rate, the elderly rate, educational attainment, and in-group quarters. This finding indicates that under the Koch administration, subsidized housing was unlikely to be built that targeted minority areas. Only population density alone was a significant indicator of the siting of affordable housing. This finding suggests that the denser census tracts were, the more they were targeted for affordable housing units to be built during the 1980s.

At the same time, the results showing a negative relationship between median family income and the development of affordable housing during the Bloomberg administration suggest that the housing developments are more likely to be constructed in low-income neighborhoods. The coefficient is negative: -0.40. Also, the housing might be built in areas with a higher percentage of persons in poverty in that period, when considering that the coefficient of that poverty rate is positive: 38.14. On the other hand, affordable housing was not likely to be constructed in areas with a high concentration of persons living in group quarters such as correctional facilities, nursing facilities, and in-patient hospice facilities. The coefficient of the percentage of persons in group quarters is negative: -19.47. For other independent variables that are statistically insignificant, affordable housing was no more likely to be built in connection with the unemployment rate, the elderly rate, the educational attainment rate, and the population density during the 2000s.

From GWR models

FIGURE 6—A distribution map of the coefficients of population density in the 1980s—clearly supports the finding that population density was a dominant element in determining the locations of affordable housing, mostly in Manhattan, the South Bronx, and in the Bushwick, Bedford, Brownsville, and East New York neighborhoods in Brooklyn, similarly as presented in the OLS model. Results from **FIGURE 7**. suggest that during the 2000s, low-income tracts in Brooklyn and Queens tended to be the sites of affordable housing units. Relatively high-income areas in Manhattan and Bronx also had more affordable housing units, as different from the OLS results. **FIGURE 8**. showing the coefficients of the poverty rate during the 2000s, indicates a similar pattern to the positive relationship shown in the OLS model. It shows that affordable housing developments were more likely to be constructed in areas of Manhattan, the Bronx, and Brooklyn with higher poverty rates, which is where most affordable housing was located under Bloomberg administration (**TABLE 3.**). **FIGURE 9**. Mostly shows a negative relationship between

the siting of housing developments and the proportion of persons in group quarters throughout Manhattan, the Bronx and the Bushwick, Bedford, Brownsville, and East New York neighborhoods in Brooklyn.

Overall, socio-economic factors did not indicate a strong relationship with the decision on the siting of affordable housing, meaning no tendency to residential segregation. Particularly Koch's housing developments were not strongly related to the segregation. They did have a positive relationship with high population density, suggesting that affordable housing was more concentrated in areas of high population density. This tendency would be related to helping economic development strategies other than residential integration when considering agglomeration effects. However, during the Bloomberg administration, neighborhoods with a low average income level and high poverty rate were the sites of more affordable housing units, which could play a role in forming the segregation of minority communities.

5.3 Analysis of property characteristics

From OLS models

The findings in the OLS regression models indicate that rent values in census tracts and their changes were a significant predictor of the location of affordable housing developments during the 2000s. However, this was not the case during the 1980s. The regression coefficients for Bloomberg's housing developments are all strongly positive, 51.09 and 3.49. This indicates that higher rent values contributed to the in-fills of housing and that rent prices increased along with this provision. The vacancy rate in census tracts was positively related to housing developments during both periods. The coefficient during the Bloomberg period, 62.66, is higher than that under Koch, 46.93. Likewise, property size also had a positive relationship during both periods: notably, the coefficient in the 2000s was higher than that in the 1980s. The percentage of homeownership in census tracts was not significantly related to the placement of affordable housing units.

From GWR models

Findings from **FIGURE 10.** suggest that affordable housing developments were built in areas with high rents particularly focusing on Harlem in Manhattan, the South Bronx, and the Bushwick, Bedford, Brownsville, and East New York neighborhoods in Brooklyn during the Bloomberg administration. In midtown and downtown Manhattan, housing units were produced in census tracts with relatively cheap rents. **FIGURE 11.**—a distribution map of showing the coefficients of changes in rents during the 2000s—strongly supports the OLS's outcomes indicating that the Bloomberg's affordable housing developments might result in increases in rents, which is shown chiefly in Manhattan and Bronx.

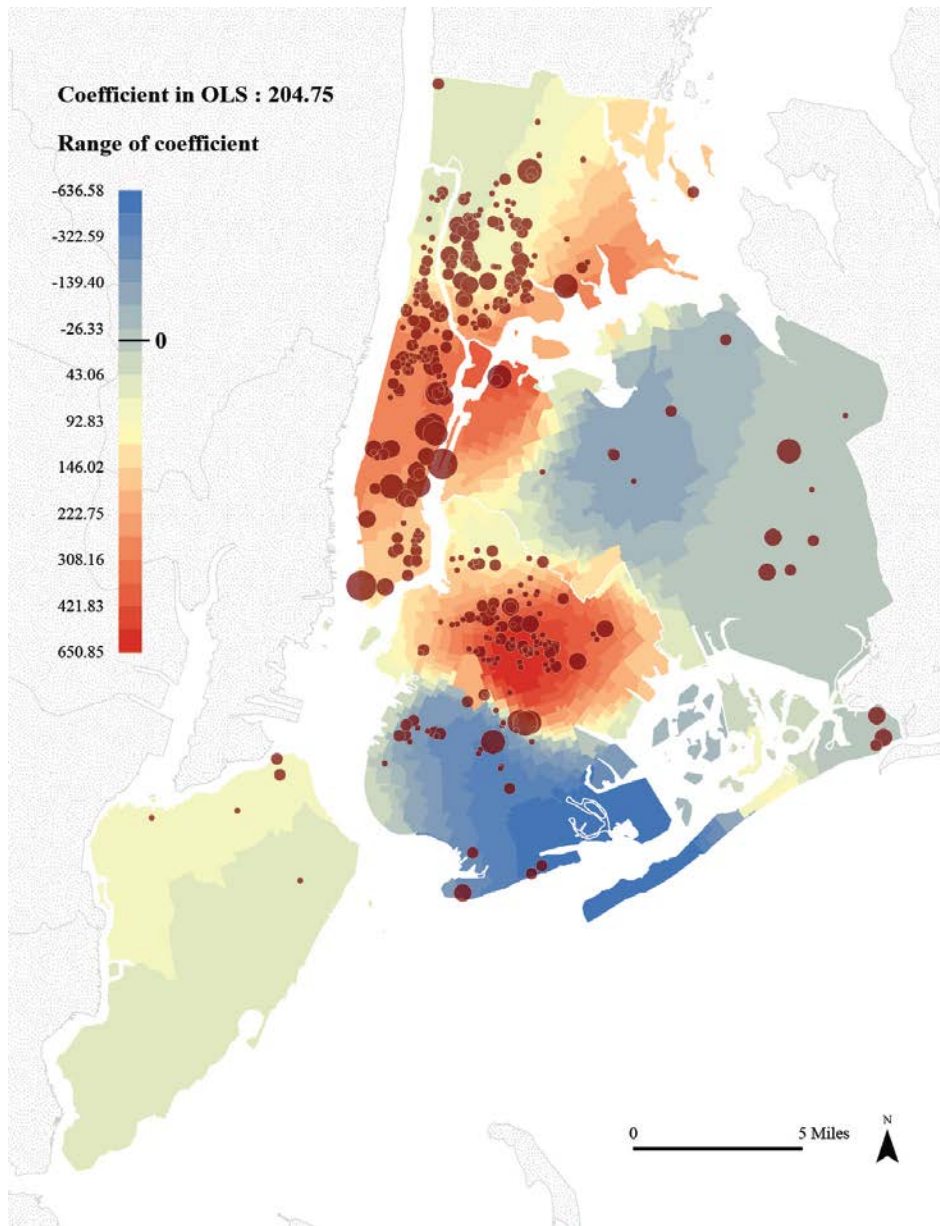


FIGURE 6. Distribution of coefficients—population density, 1980s
Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

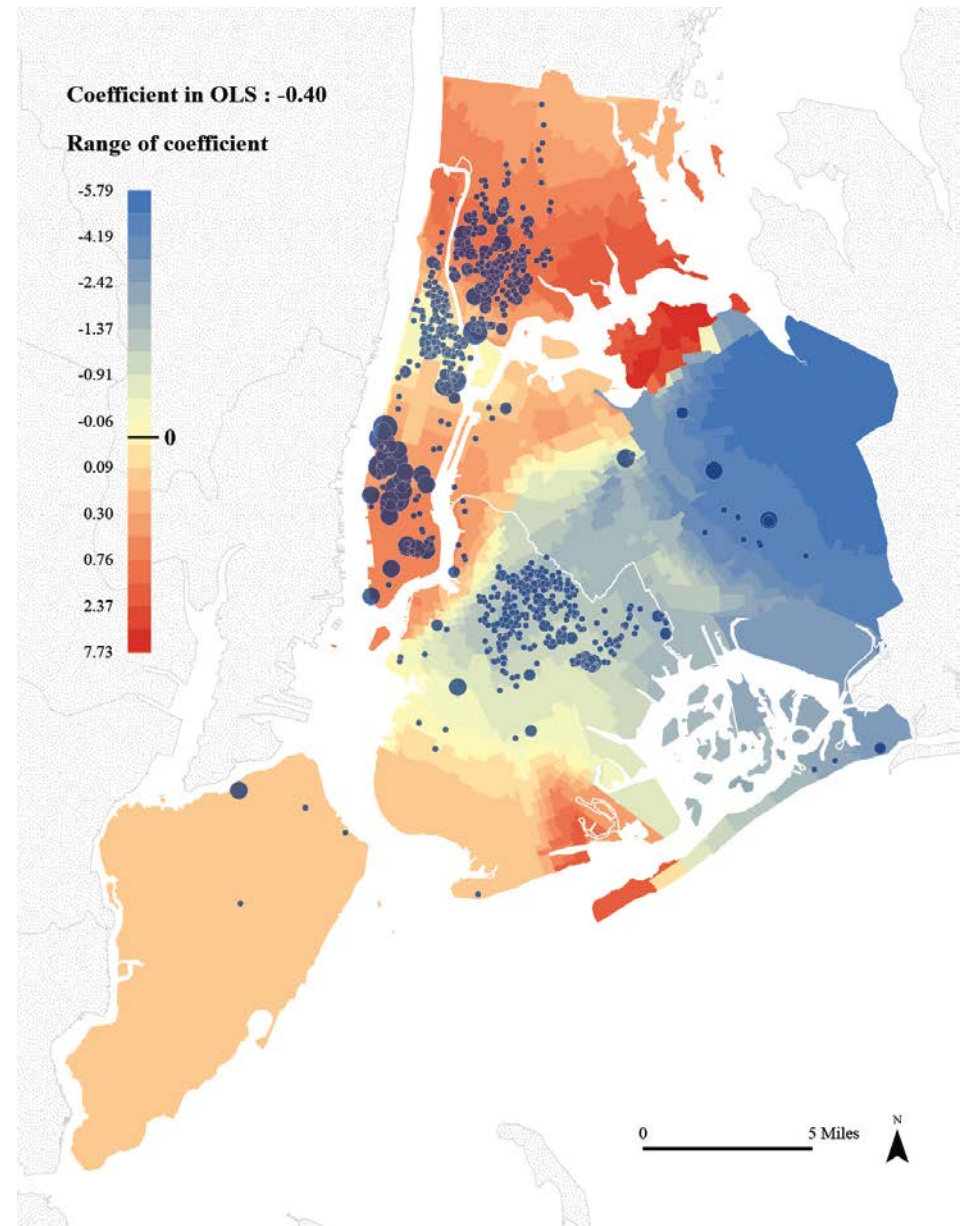


FIGURE 7. Distribution of coefficients—median family income, 2000s
Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

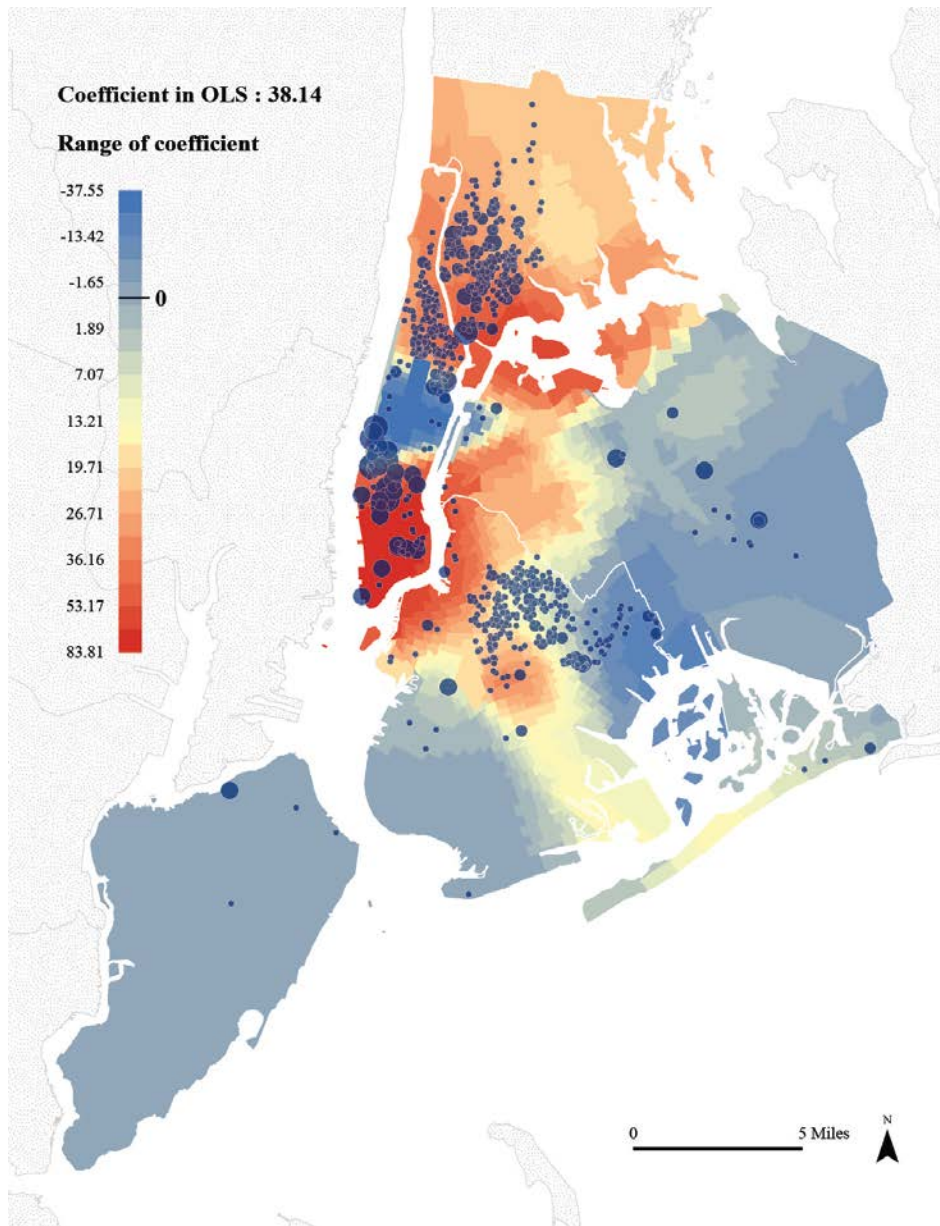


FIGURE 8. Distribution of coefficients—poverty rate, 2000s

Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

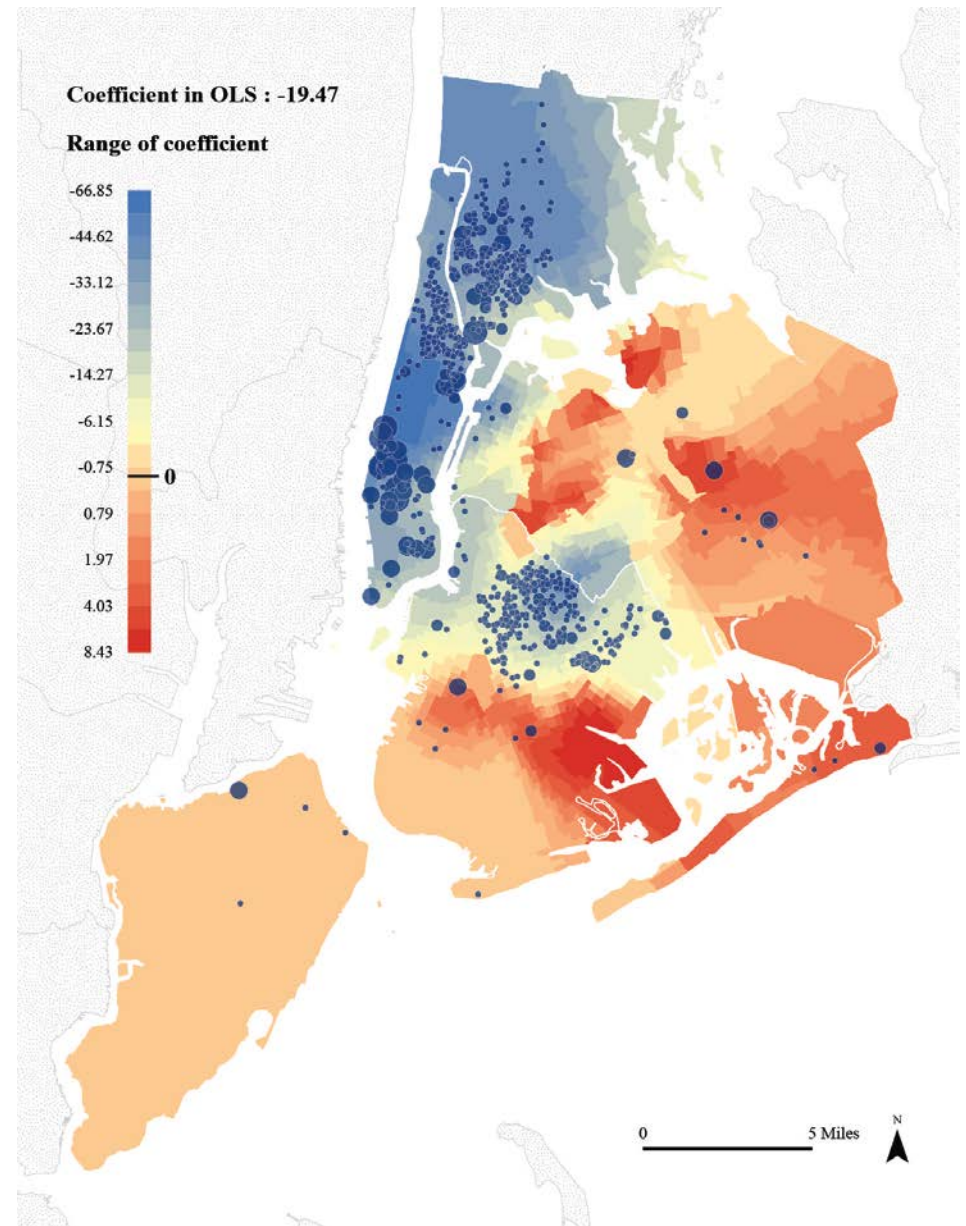


FIGURE 9. Distribution of coefficients—in-group quarters, 2000s

Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

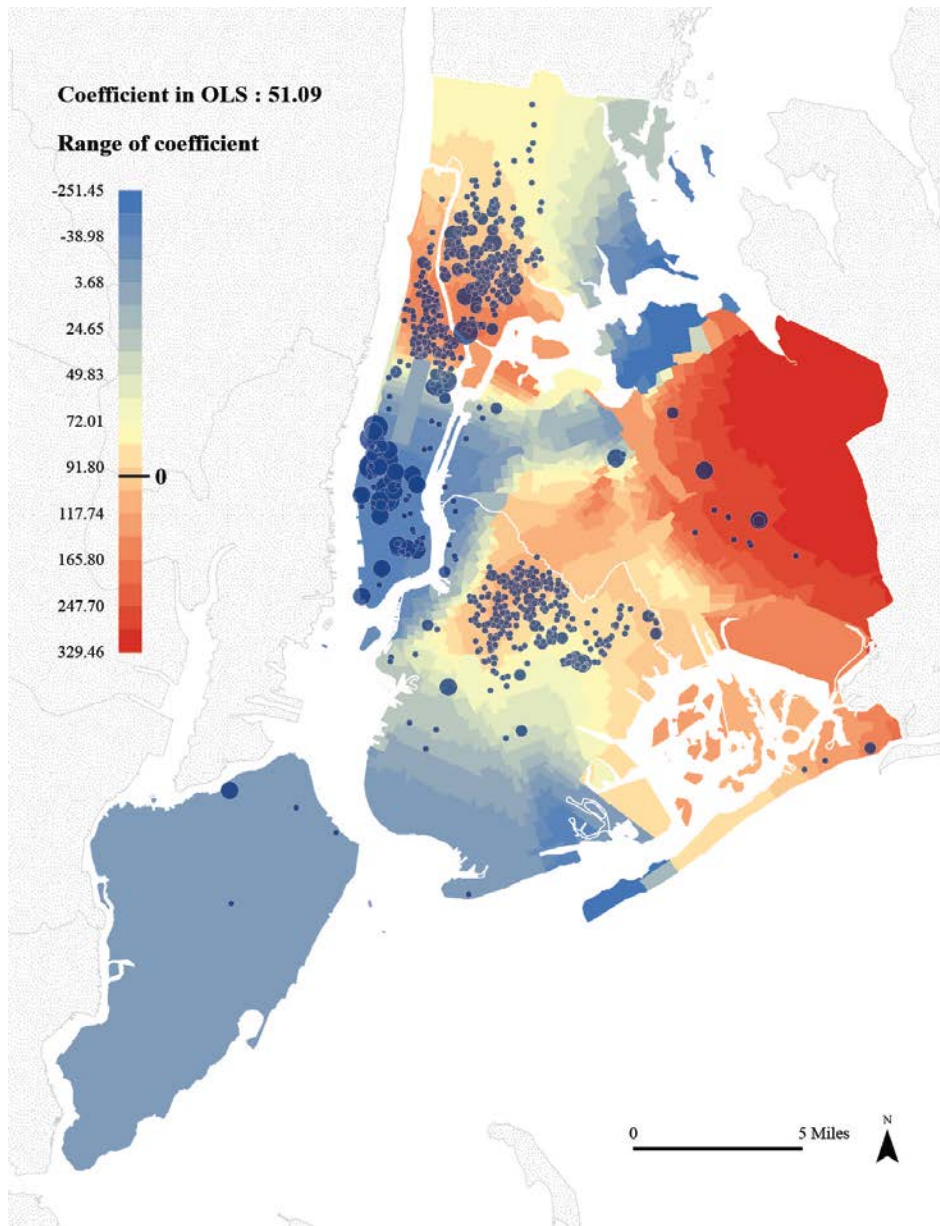


FIGURE 10. Distribution of coefficients—median rent value, 2000s
Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

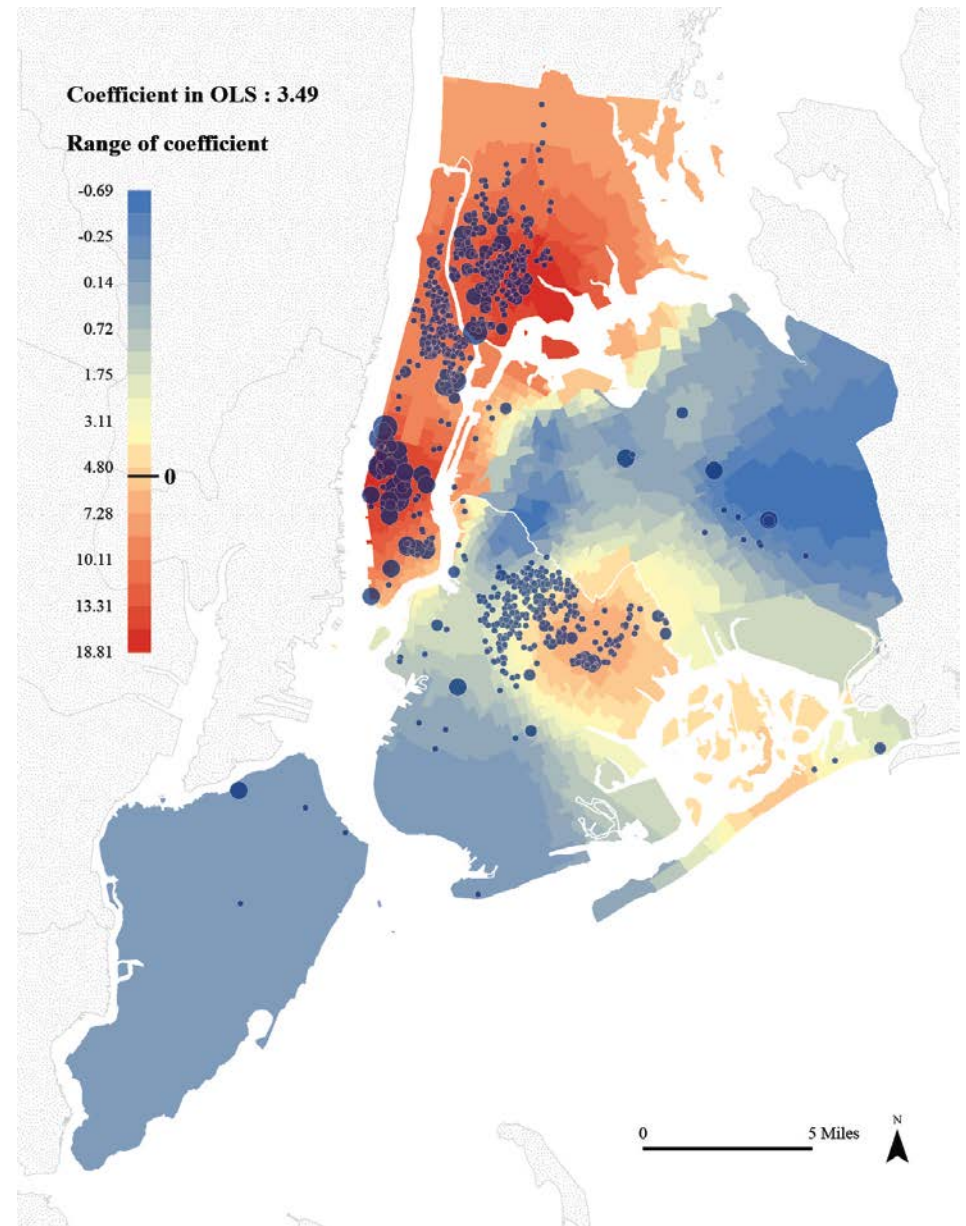


FIGURE 11. Distribution of coefficients—change of rent value, 2000s
Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

The two distribution maps **from FIGURE 12.** and **FIGURE 13.** allow a direct comparison between the Koch and Bloomberg administrations in terms of the effects of vacancy rates on the placement of affordable housing. Whereas affordable housing units were provided in response to high vacancy rates in many of the census tracts in Manhattan, the Bronx, and upper Brooklyn under the Koch administration, Bloomberg developed housing focused on neighborhoods in Harlem and the Bronx with high vacancy rates. **FIGURE 14.** and **FIGURE 15.** provide a comparative analysis of the project scale variable between the two periods. Both focus on larger-scale developments of subsidized housing. However, Koch focused on Brooklyn, while Bloomberg’s focus was on Manhattan and the Bronx.

In that both administrations tried to build affordable housing in areas with low vacancy rates, the two mayors might both be thought to have had a strong interest in spurring economic development in distressed areas in New York City. This may be interpreted as indicating their orientation to attracting private investment, because this kind of urban redevelopment is typically driven by private developers. Of the two, however, Bloomberg’s housing developments had a stronger relationship to economic development and thus to private investment, as his affordable housing provisions resulted in an increase in rent values, and were also targeted to area with relatively high rents.

5.4 Model diagnostics

In my OLS models, all of the Variance Inflation Factor (VIF) values are less than 7.5, which reveals no redundancy among independent variables. R-squared values are 0.81 and 0.57 for the Koch and Bloomberg administrations respectively, meaning that that model performance is reliable at 81 and 57 percentage in the two cases.

In Koch’s OLS model with 81 percentage R-squared, only three variables, population density, vacancy rate, and property size were statistically significant. This suggests these three independent variables are dominant indicators relative to affordable housing developments during 1980s. On the other hand, Bloomberg’s OLS model shows relatively low R-square, 57 percent while 9 independent variables are statistically significant, suggesting that his developments were driven by more various external factors. Both Joint F and Wald Statistic possibility values of less than zero indicate that the overall models are significant. Koenker (BP) Statistic specifies that the relationship modeled may have either non-stationarity or heteroskedasticity, so robust possibility values were recommended. But a less than robust possibility was shown only in median family income due to non-stationarity, which was taken into account in my analysis.

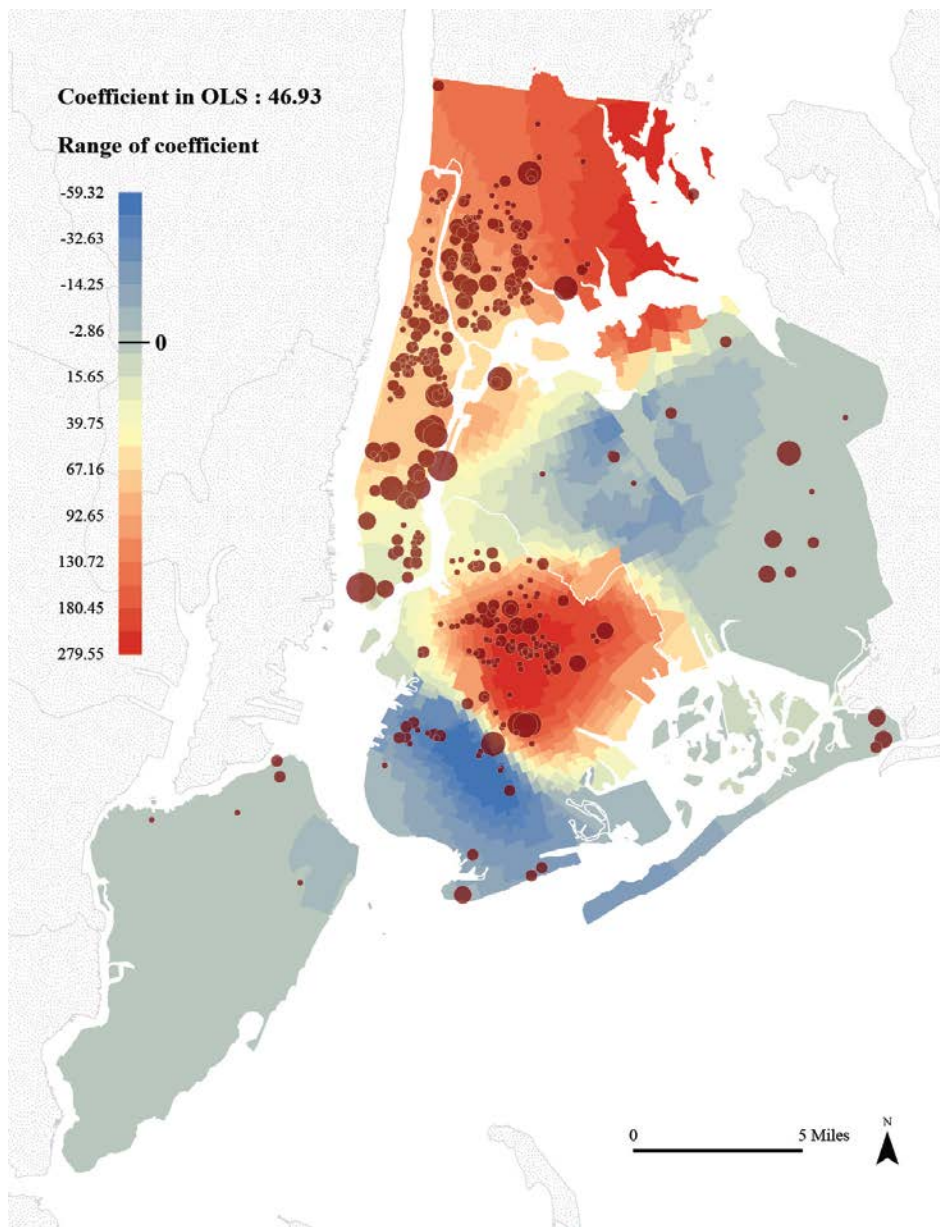


FIGURE 12. Distribution of coefficients—vacancy rate, 1980s

Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

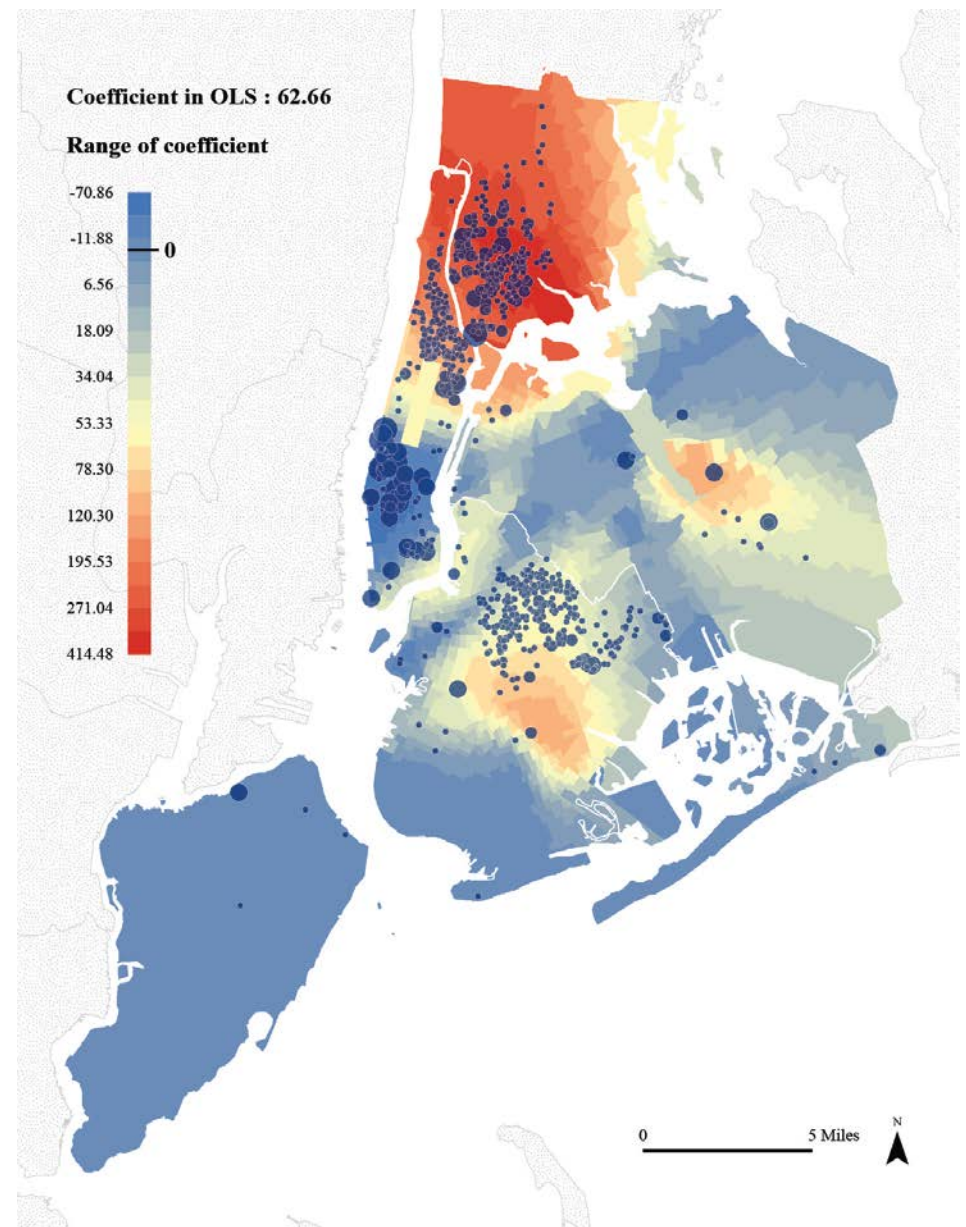


FIGURE 13. Distribution of coefficients—vacancy rate, 2000s

Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

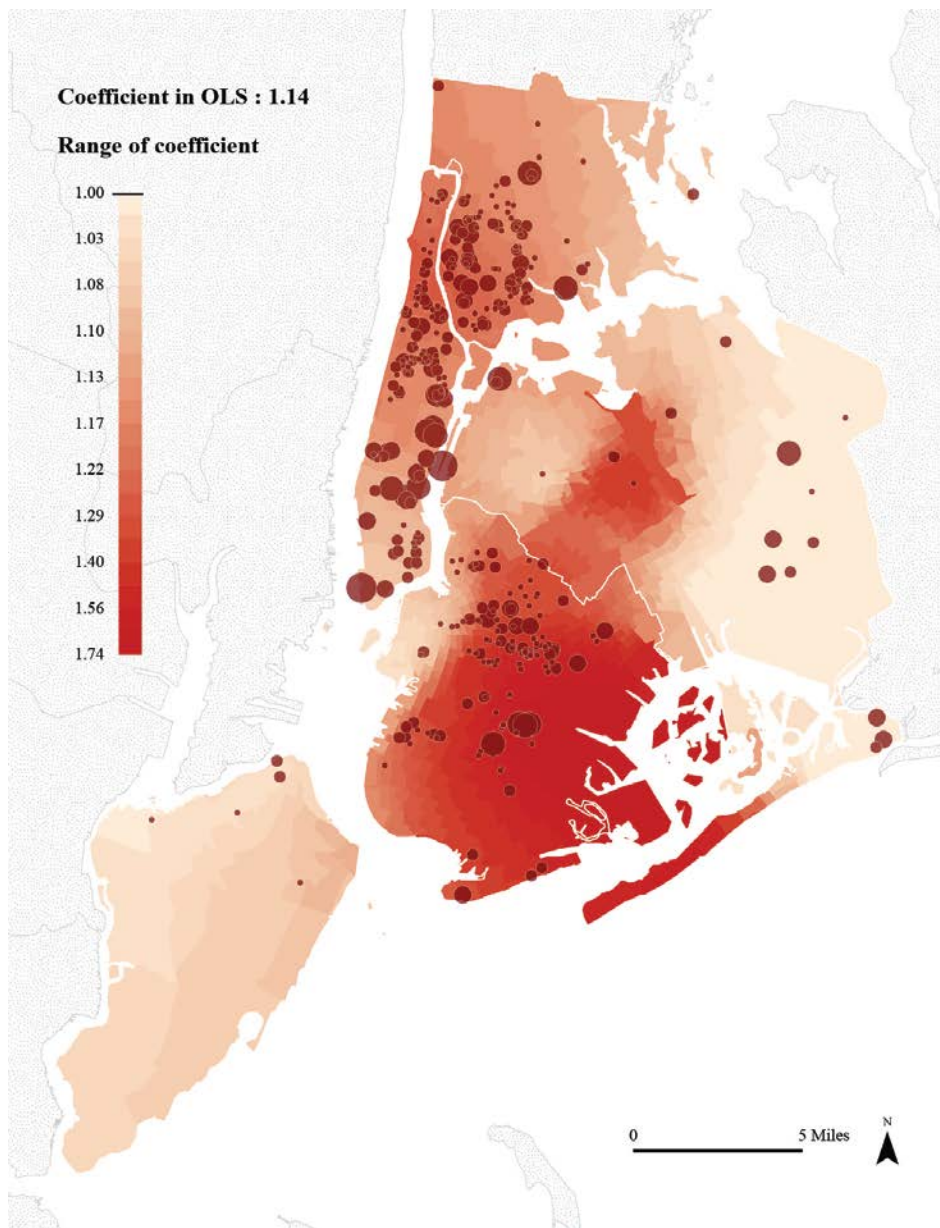


FIGURE 14. Distribution of coefficients—property size, 1980s

Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

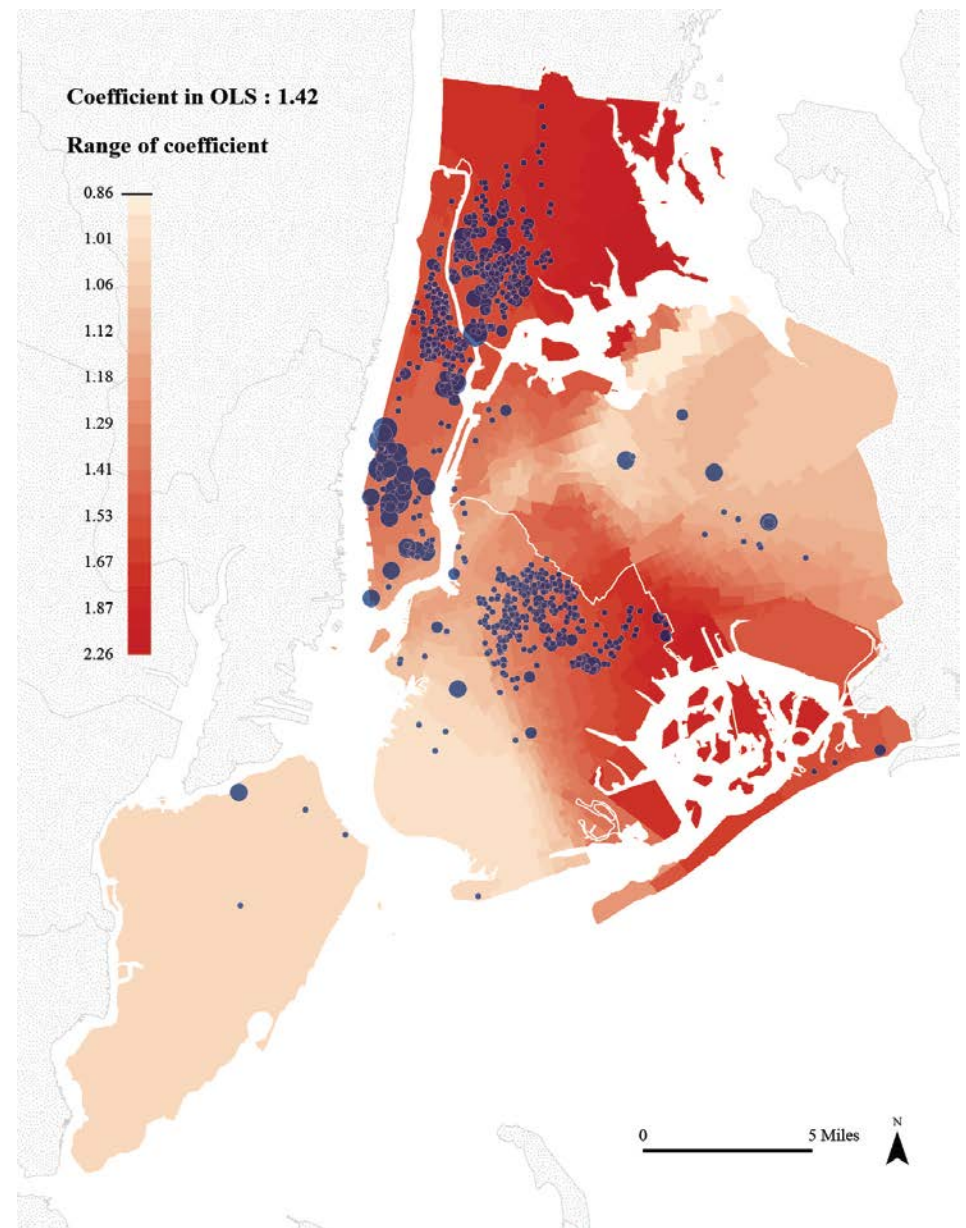


FIGURE 15. Distribution of coefficients—property size, 2000s

Data Source: ArcGIS's GWR, The NYU Furman Center, U.S. Census Bureau, and NHGIS

In my GWR models, R-squared indicates 0.85 and 0.63 for the Koch and Bloomberg administrations. In Staten Island and East Queens, where the provision of affordable housing was located, local multi-collinearity was detected. The census tracts were excluded in my analysis.

6. Conclusion

The two conflicting trends in public and subsidized housing developments—(1) the geographical and social integration of households, and (2) the encouragement of private investments, thereby reducing reliance on public subsidies—have been offered to explain the relationship between mayoral political ideology and siting decisions on affordable housing in New York City. And the three urban perspectives on racial composition, socio-economic factors, and housing characteristics of census tracts where affordable housing developments were built, have been examined in order to test the relationship.

The first aspect of racial proportions in a neighborhood suggests that the siting of affordable housing is weakly explained by the relative political power of different racial and ethnic groups in New York City during Koch's administration. However, in the Bloomberg period, neighborhoods with a high concentration of Hispanics were likely to receive new affordable housing. Because they are often regarded as undesirable additions to a neighborhood, the affordable housing developments might be placed in the areas inhabited by the politically weakest groups in society, resulting in a residential segregation of the Hispanic groups.

Secondly, an analysis of socio-economic indices suggests that in New York during the 1980s the siting of affordable housing developments was not based on the neighborhood's median family income, poverty rate, unemployment rate, proportion of elderly, educational attainment, or proportion of persons in group quarters. On the other hand, during Bloomberg's tenure, median family income and the poverty rate were strong indicators of the location of affordable housing. During the 2000s, affordable housing was relatively more developed in areas with a lower-income population and/or a high poverty rate. Largely, these tendencies might hinder neighborhoods from geographical and social integration. But the developments were unlikely to be located in areas with a high population of group quarters. This is perhaps because those quarters and facilities were far away from the locations where affordable housing

was usually found. Affordable housing developments were located relatively close to CBDs, in accordance with their fundamental purpose.²⁸

Lastly, the property characteristics presented here provide considerable support for the conclusion that both administrations focused on areas with high vacancy rates and the larger-scale housing developments. Moreover, the housing developments constructed under Bloomberg were more likely to be built in census tracts with high rents and expectation of rent increases. The findings on property characteristics suggest that both governments were concerned about placing large-scale housing units in neighborhoods with high vacancy rates for the purpose of community revitalization. The focus on such urban redevelopment that is generally driven by the private sector may be a clue that both housing developments were designed to attract private developers. Particularly, when considering that developers prefer to invest in areas with relatively high rents and the expectation that they will increase profitably, the affordable housing developments during the Bloomberg administration were more oriented to encouraging private investment.

With different ideological motivations, the two mayors were both looking to use housing provisions to enhance the economic development of the city. The opportunity to promote economic development is of some importance in this city, one of the world's largest and most important economically and culturally. The principal differences were that Mayor Koch was more concerned with the racial and social integration of the city's neighborhoods and Bloomberg more with economic growth as a whole. Lastly, the inconsistent results from the two regression analyses of the OLS and GWR models suggest that the provision of affordable housing was tied to the character of the neighborhoods where it was located as well.

Although I have shown that mayoral political ideology did in part determine siting decisions of affordable housing, I have not shown in detail how and what does. More work will need to be done to understand which other factors are most important in the placement of new affordable housing. While intuition suggests that production should be more associated with a combination of economic, social, and political contexts, a direct comparison of the affordable housing provisions with the conditions will have to await future research. Finding and measuring the combined factors connected to housing developments may be difficult and might be a fruitful topic for further study. In future work, I hope to gain a better understanding of how housing interacts with other conditions to change neighborhoods.

²⁸ Affordable housing fundamentally aims to be provided for low- or moderate-income workers who commute to cities.

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